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BS Digital Satellite Broadcasting Operational

Guidelines for Datacasting

5.3.1.6 Empty carousels usage

- An empty carousel is a data carousel with no DDB, where the numberOfModules field consists entirely of DII with zeroes.

- Empty carousels are used to switch between send/stop for component data without changing the ES description in the PMT, for instance, when a given component is required only for a particular period in an event.

- Switching between empty and non-empty carousels also switches the data_event_id.

- The rules for DII minimum transmission intervals (refer to 5.3.2) apply equally to empty carousels when they are transmitted.

- DII version upgrades are not generated during transmission of an empty carousel.

- At station selection (with auto_start_flag=1) and when an empty carousel is detected during data event switching, no error is generated but instead DII updating is monitored, and display of the startup document begins when the startup document first appears. For a data-enriched television program with auto_start_flag=0, if the entry component is an empty carousel at the point when the user presses the data button to activate the datacasting engine, the activation process is suspended and the device waits for the data button to be pressed again.

- If the carousel containing the document currently being viewed during multimedia content display changes to an empty carousel, a data event message ("DataEventChanged" interrupt event, identified via status=1) indicating the "change to an empty carousel" is generated for the BML document. This operation is the same irrespective the value of auto_start_flag and whether or not it is an entry component.

- Where an empty carousel is referenced but not in connection with station selection or data event switching for instance, via execution of a link between BML documents this results in an error equivalent to that which is generated when an ordinary carousel does not contain a reference module.

5.3.1.7 Basic receiver operations during datacasting program display

- The receiver continuously monitors the carousel DIIs of the following two components:
  1. Component DII containing the module being viewed
  2. Entry component DII.
      The entry component DII is monitored in order to determine the timing for a forced return to the entry carousel in conjunction with local content switching for the entry component.

- Receiver response to data event switching on the component being viewed
  The datacasting engine generates the "DataEventChanged" data event message for the document currently on display. It then discards the document, and obtains and displays a startup document contained in the module with moduleId=0. If data event switching results in an empty carousel, then after the document currently on display has been discarded the relevant component DII update is monitored, and if the empty carousel is removed by subsequent data event switching, a startup document is obtained and displayed. All synchronous and asynchronous interrupt events that occur after "DataEventChanged" are discarded, except for unload interrupt events. Where the epgTune/launchDocument/reloadActiveDocument function is employed within the "DataEventChanged" event handler, the startup document is not obtained and the processing is in accordance with the function specification.

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